

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following remarks is respectfully requested.

Claims 1, 3-9 and 11-13 remain active in this application, Claims 1, 3, 7, and 11 having been amended and Claims 2 and 10 canceled by the present Amendment.

In the outstanding Office Action Claims 1-4, 6, 7, 10 and 11 were rejected under 35 USC §103(a) as being unpatentable over Raina (U.S. Pat. No. 6,537,427) in view of Kishino et al (U.S. Pat. No. 6,249,266), Claims 5, 8, 9 and 12 were rejected under 35 USC §103(a) as being unpatentable over Raina and Kishino et al as applied to Claims 1 and 7 above, and further in view of Itoh et al (U.S. Pat. No. 5,899,350), and Claim 13 was rejected under 35 USC §103(a) as being unpatentable over Raina, Kishino et al, Itoh et al as applied to Claim 12 above, and further in view of Tsuburaya et al (U.S. Pat. No. 6,407,500).

In light of the several grounds for rejection, Claims 1 and 7 have been amended to include the features stated in Claims 2 and 10, respectively, and Claims 2 and 10 have been amended. Claims 3 and 11 have been amended to be consistent with amended Claims 1 and 7. No new matter has been added.

Applicants respectfully traverse the outstanding grounds for rejection because in Applicants' view, the claimed invention clearly is not obvious over the cited references for the reasons given below.

Briefly recapitulating, Claims 1 and 7 are directed to image display apparatuses which include a plate-shaped structure arranged between a first substrate and a second substrate, and fixed to at least one of the first and second substrates. As formerly stated in dependent Claims 2 and 10, and as now stated in amended independent Claims 1 and 7, the plate-shaped structure has a thermal expansion coefficient which is 1.02 to 1.2 times higher than that of at least one of the substrates to which the structure is fixed.

According to the claimed invention, therefore, the thermal expansion coefficient of the plate-shaped structure is set to be higher than the thermal expansion coefficient of the substrate. In particular, the thermal expansion of the plate-shaped structure is 1.02 to 1.2 times higher than the thermal expansion of the substrate.

The present invention achieves an object which is peculiar to a display device, which undergoes a heating process under a condition where a substrate is arranged near a plate-shaped structure, and for example, in a vacuum envelope where the temperature difference between the substrate and the structure is likely to generate.

Further, the present invention achieves an object which arises under a condition where during operation of a display device, a first substrate and a second substrate generate heat, but the structure does not. A suitable thermal expansion coefficient of the plate-shaped structure under such a condition cannot be determined from the prior art.

The thermal expansion coefficient of the plate-shaped structure cannot be too high or too low, and is determined by analyzing the above-described condition which is peculiar to the display device. A suitable range of the thermal expansion coefficient is determined based on experiments conducted at the actual facilities. Such range cannot be easily determined.

Applicants further refer the Examiner to the detailed explanation and advantages of the above-described structure described at page 14, line 2 to page 18, line 5 of the specification.

On the other hand, Raina discloses a conductive layer 26 and a gate layer 30 which are laminated on substrate 22. However, conductive layer 26 and gate layer 30 are either a layer or a film, and thus have a structure greatly different from the claimed plate-shaped structure. In addition, Raina completely fails to disclose or suggest that the thermal expansion coefficient of a plate-shaped structure is set to be higher than the thermal expansion coefficient of a substrate. Still further, Raina completely fails to disclose or

suggest that the thermal expansion coefficient of the plate-shaped structure is 1.02 to 1.2 times higher than the thermal expansion coefficient of the substrate. Thus, it is respectfully submitted that the pending claims clearly patentably define over Raina.

Kishino et al at column 3, lines 16-18 describes that the cathode substrate is formed of a material different in thermal expansion coefficient from a material for the casing. Further, Kishino et al at column 5, lines 53-62 describes that casing 20 is made of glass and cathode substrate 1 is made of such material as Au, Al and Ag.

Although Kishino et al. describes that the cathode substrate 1 and the casing 20 are made of materials having different thermal expansion coefficients, Kishino et al. fails to describe or suggest that the thermal expansion coefficient of the cathode substrate 1 is set to be higher than the thermal expansion coefficient of the casing 20. Furthermore, Kishino et al. fails to disclose or suggest that thermal expansion coefficient of the cathode substrate 1 is 1.02 to 1.2 times higher than the thermal expansion coefficient of the casing 20.

In general, the thermal expansion coefficient of metal is not necessarily higher than the thermal expansion coefficient of glass. The thermal expansion coefficient of metal varies depending on the composition. For example, an umber alloy is an iron-nickel alloy, but its thermal expansion coefficient is far lower than that of glass.

As evident from the above, neither Raina nor Kishino et al. discloses nor suggests the above-described structure of the claimed invention. Further, the claimed structure, wherein the thermal expansion coefficient of a plate-shaped structure is 1.02 to 1.2 times higher than the thermal expansion coefficient of a substrate, is not obvious even to a person with ordinary skill in the art. Therefore, it is respectfully submitted that the pending claims patentably define over Raina and Kishino et al. whether considered alone or in combination.

The remaining cited references, Itoh et al. or Tsuburaya, have also been considered, but are deemed no more pertinent to patentability than the Raina and Kishino et al. references above discussed.

Consequently, in view of the present amendment and in light of the above discussion, no further issues are believed to be outstanding, and the present application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

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